

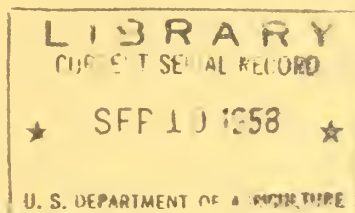
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FEDERAL-GRANT RESEARCH

at the

STATE AGRICULTURAL

EXPERIMENT STATIONS

Projects on

HUMAN NUTRITION

Part 13, Section a

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

Compiled March 1958 by

The State Experiment Stations Division, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C., for use of workers in agricultural research in the subject-matter areas presented. For information on specific research projects write to the Director of the Station where the research is being conducted.

Issued June 1958

FEDERAL-GRANT RESEARCH

at the

STATE AGRICULTURAL EXPERIMENT STATIONS

Projects on

HOME ECONOMICS

Section a: Human Nutrition

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INTRODUCTION

This compilation is one of a series providing information on State agricultural experiment station research supported by Federal-grant funds appropriated annually by Congress under authorization of the Hatch Act of 1887, as amended and approved Aug. 11, 1955, and Section 204(b) of the Agricultural Marketing Act of 1946. It is prepared for use by research workers in the subject-matter areas presented. Only that part of each State's research program supported by Federal-grant moneys is included.

In addition to the Federal-grant moneys, the State experiment stations receive some Federal support through cooperative agreements or contracts with the U. S. Department of Agriculture. Information on such research, along with other departmental research, is available in the Central Project Office, Agricultural Research Service.

A substantial part of each State agricultural experiment station's research is supported with moneys appropriated by the respective State or Territorial Legislatures and through other forms of private and public financing. Information on current agricultural research at the stations which is not financed under the Federal-grant program or through USDA cooperation can be obtained from experiment station directors.

The information given in the series of Federal-grant compilations includes the title and objectives of each Federal-grant project pertaining to the subject given on the cover. The identification of each project gives the department(s) conducting the research, the station number of the project, and the number of the regional project if it is a contributing project.

Relevant regional projects, if any, appear at the end of the compilation. States having projects contributing to regional projects are indicated. The Roman numeral (and capital letter) refer to the location in the summary of the contributing project title and objectives. The States are grouped into four major regions. These are designated NC-North Central, NE-Northeastern, S-Southern, and W-Western. The capital letter "M" following the letters for the region indicates regional marketing projects.

FOOD COMPOSITION AND NUTRITIVE VALUE

- Ariz. The Nutritive Values of Southwestern Produced Feeds and Factors Affecting These Nutritive Values. To determine the nature and activity of growth stimulating factors in honey and the various toxic factors in cottonseed meal.
Agr. Biochem., Poul. 258-C
- Ark. Nutritional Improvement of Rice and Rice Diets. To determine (1) the effect of replacing some of protein in brown milled, enriched, parboiled, and converted rice with proteins of animal and vegetable origin and the effect of additional proteins; (2) the availability of amino acids or proteins of rice and its by-products; (3) the effect of germination of rice on protein, amino acid and vitamin content and to compare results obtained with those obtained in the germination of oats; and (4) to conduct breeding experiments with rice to produce a high protein content strain.
Agr. Chem. 101
- Ark. Improving Protein Efficiency of Cereal Grains with Amino Acids. To improve the quality of proteins of plant foods such as cereal grains by adding certain amino acids.
Agr. Chem. 355
- Ark. The Biological Value of the Proteins in Different Cuts of Chicken Meat and in Chicken Organs. To (1) determine biological value of proteins in white and dark meats of chicken muscle and organs for friers, broilers, and hens; also in livers, gizzards, hearts, and lungs, as to growth, reproduction, and lactation; and (2) to reinvestigate the value of proteins in chicken muscle meats, beef, pork, lamb, and veal.
Agr. Chem. 418
- Ark. Nutritive Value of Fish Proteins for Growth, Reproduction and Lactation and Their Supplementary Value to the Proteins in Cereal Grains. To study the nutrient content and biological utilization of fish proteins.
Agr. Chem. 462
- Ark. The Nutrient Content of Some Arkansas Fresh Water Fish and a Study of Their Meal Quality. To determine (1) the content of vitamins, protein, fat, amino acids and minerals of some fish species caught in streams and ponds, and of meals prepared from fish; (2) the protein efficiency ratio, biological value and true digestibility of the proteins of fish, and of their meals; (3) the supplementary effect of proteins of these fish and fish meals for proteins of wheat, corn, rice, and other grains and foods and effect of addition of these proteins; (4) availability of amino acids of proteins of fish and fish meals.
Agr. Chem. 463

Colo. Properties and Processing of Colorado Fruits and Vegetables.
To study (1) the composition, nutritive values and related chemical, physical, and organoleptic properties, and (2) the modifications of these characteristics arising from variations in the sample.

Home Econ., Chem. 90

Storrs
(Conn.) The Free Amino Acids and Peptides in the Non-Protein Fractions of Normal and Modified Milk and the Role of Amino Acids as Precursors of Normal and Abnormal Flavors in Dairy Products. (1) To extend developments of methods for the preparation of protein and inorganic ion-free filtrates, and identify free amino acids and peptides present in normal milk and milk modified by heat, light, and by growth of certain microorganisms. (2) To learn if S. lactis and its malty variant possess active transaminase and decarboxylase systems for amino acids related to leucine and for other amino acids; to identify end-products of above enzymatic degradation of amino acids; and to elucidate mode of action of organisms on the alpha-keto-acid analogs of the various amino acids. (3) To determine nutritional needs of strains of Ps. fragi and to make simultaneous observations on the ability of organisms to produce the characteristic fruity aroma in simple media containing single organic compounds; to develop a substrate in which the organisms will produce fruity aroma substance in sufficient quantities for purposes of isolation; to isolate and identify fruity aroma substances; and to determine the mechanism of formation of fruity aroma substances. (4) To learn, if possible, the mode of conversion of amino acids to corresponding aldehydes by transamination and decarboxylation during high heat.

Anim. Indus. 134

Fla. The Nutritive Value and Storage Characteristics of Cobalt-60 Irradiated Foods and Feeds. To develop techniques for maintaining the nutritive value and palatability and for extending the storage period of foods and feeds preserved by irradiation with Co-60 at pasturization and sterilization levels.

Anim. Husb., Nutr., Food Technol. and Nutr. 849

Ga. Effect of Location and Feeding Programs upon the Vitamin B₁₂ Content of Cow's Milk. To (1) compare the content of vitamin B₁₂ in milk produced by matched groups of cows fed similar rations at two locations in Georgia and (2) determine the B₁₂ content of pasture grasses from each location.

Home Econ. 81

- Ga. Vitamin B₁₂ and Methionine in Some Georgia Vegetables.
To (1) determine the B₁₂ and methionine concentrations of leaves, petioles, and roots of turnip greens and other vegetables grown at two locations in the state and (2) relate B₁₂ and methionine content to season, degree of maturity, and location.
Home Econ. 82
- Hawaii A Study of the Nutritive Value of Foodstuffs in Hawaii by Means of Chemical Analyses, Microbiological Assays and Biological Experiments. To (1) assemble data on the chemical composition and nutritive values of foods used locally in order that such data may be used in evaluating the diets of various groups or individuals in Hawaii; (2) furnish data as needed on local foods used for poultry and other farm animals, and (3) make other occasional food analyses as needed.
Nutr., Home Econ. 501-A
- Hawaii The Sodium Content of Selected Fruits and Vegetables Grown in Hawaii. To determine the variability of sodium content of some important fruits and vegetables in relation to area where grown and proximity to the ocean.
Food & Nutr. 521
- Ill. The Nutritive Value of Grains Grown Upon Rich and Poor Soils. Analyze, for nutritive value, grain grown upon rich and poor soils.
Anim. Husb. 20-355
- Ill. Effect of Heat on Nutritive Value of High Fat Processed Foods. To (1) evaluate the nutritive value of high fat foods, those which are prepared by deep fat frying and those normally prepared by other cooking procedures and (2) determine the chemical changes in the fat, protein, and carbohydrate fractions of various products in order to correlate such changes with any nutritive changes observed.
Food Technol. 50-396
- Ill. Conservation of Nutritive Value of Food. To (1) determine losses incurred in vitamins, primarily ascorbic acid and riboflavin, in a considerable number of vegetables and fruits at selected stages from harvest to time of consumption; and (2) compare effects of common cooking methods on the amounts of nutrients in certain cuts of meat.
Home Econ. 60-321

- Ill. Soybeans and Soybean Products as Human Food. To (1) investigate the desirability of soybeans and their products for human consumption; (2) study the suitability of different varieties for cooking and processing and, (3) determine chemical constituents of soybeans to ascertain why they differ in culinary qualities from other legumes.
Home Econ. 60-324
- Ind. Metabolism of Hexahomoserine. To learn the metabolic fate of both D- and L-hexahomoserine in the rat.
Biochem. 555
- Ind. The Liberation of Vitamins from Casein, Soybean and Other Proteins. To study methods for liberation of vitamins from proteins and to prepare vitamin-free proteins suitable for use as dietary proteins in test rations.
Biochem. 576
- Ind. Genetic and Chemical Studies in the Breeding of Tomatoes for Higher Vitamin Content. To (1) develop improved red and orange varieties of tomatoes of high vitamin C and provitamin A content; (2) determine the genetic basis of inheritance of various tomato fruit pigments and related colorless polyenes; and (3) clarify the chemistry of tomato fruit pigments and related polyenes.
Biochem., Bot., Plant Path. 738
- Ind. The Effect of Cooking Methods upon the Riboflavin Content of Meat. To (1) study extraction methods and standardize techniques of extraction and autolysis to be used in learning riboflavin content by fluorometric method. (2) compare values obtained by rat-growth, microbiological and fluorometric methods: (3) study the effect of processing on the retention of riboflavin in ground beef; and (4) compare results obtained with beef with those obtained with comparable cuts of pork.
Home Econ. 820
- Ind. Quality Classification in Relation to Nutritive Value of Poultry Products. To learn (1) the relation existing between grading factors and nutritive value of poultry products; (2) changes in nutritive properties of poultry products during time of marketing and (3) the effect of various processing and marketing techniques on nutritive properties of poultry products.
Poul. Sci. 961

- Iowa The Influence of Dietary Supplementation Selection and Breeding on Carcass Quality, and Tissue Composition of Meat Animals. To determine (1) the effects of protein, fat, antibiotics, trace minerals, calcium and phosphorus of rations on carcass quality and tissue composition and (2) effect of roughage, protein and protein substitutes, and hormones on quality of lamb and beef carcasses.
Anim. Husb. 1239
- Kans. Nutritive Value of Forages as Affected by Soil and Climatic Differences. To study differences in nutritive value of forages as affected by (1) variations in fertility and other characteristics of soils, and (2) climatic factors.
Anim. Husb. 430
- Kans. The Minor Carbohydrate Constituents of Sorghum Grains. and Other Crops. To (1) obtain data on the composition of hemicelluloses found in sorghum grains and other crops and (2) identify and study the role of water soluble carbohydrates found in cereal grains.
Chem. 530
- Mass. Mineral Elements in Cows' Milk: Tin, Boron, Arsenic, Magnesium, Sulfur, Lead. To learn (1) normal levels of certain major mineral elements and of numerous "trace" elements in milk; (2) if amounts of these elements in milk can be increased by feeding appropriate supplements and (3) what significance these higher levels may have in human and animal nutrition.
Dairy & Anim. Sci. 30
- Mass. Processing and Utilizing McIntosh Apples and Cranberries. To determine (1) nitrogenous constituents and thiamine content of McIntosh and other varieties in relation to efficient conversion of apple carbohydrate to ethanol in preparation of vinegar stock; (2) the influence of environmental conditions in various bogs on the development of red pigment of fresh fruit; and (3) certain acids including quinic acid in cranberries by application of chromatography.
Food Technol. 69
- Md. Changes in Chemical Composition of the Sweet Potato During Development, Storage, and Processing as Related to Quality of the Final Product. To learn (1) the biochemical and chemical changes in the composition of potatoes during development of fleshy root, during curing and storage, and after preparation for consumption by canning and baking and (2) varietal differences in composition as related to storage behavior and to quality of canned and baked product.
Home Econ., Hort. Q-79-g

Mich. A Study of the Physical and Chemical Characteristics of Milk Constituents and the Effect of Natural or Induced Changes in These Characteristics on the Properties of Milk and Processed Milk Products. To (1) determine relations existing between normal variations in fluid milk constituents, processing procedures, and quality and characteristics of processed milk products; and (2) interpret and integrate results of these basic studies into the processing of milk products as a means of improving quality and consumer acceptability of dairy products.
Dairy 9

Mich. The Effect of Soil Fertility on the Composition and Nutritive Value of Crops and on the Health, Milk Production, Reproduction, and Nutritive Value of the Milk of Animals Eating the Crops. To determine (1) if a high state of soil fertility results in an improved nutritive value as well as increased yield; (2) the comparative effect of crops grown on depleted and improved soil on health, reproduction, and milk production of off-spring for several generations; (3) the effect of additions of lime, complete fertilizer and "minor" elements to a depleted soil on yield, composition, and vitamin content; and (4) the effect of additions of lime fertilizer and "minor" elements on chemical characteristics of a badly depleted soil.
Soils, Dairy, Chem., Home Econ. 76

Mich. Chemical Changes in Shell Eggs During Storage. To study changes in following during storage: (1) Carotene, vitamin D, a-tocopherol, vitamin K, ascorbic acid, and thiamine; (2) chemical and physical characteristics of egg proteins and the distribution of egg proteins between white and yolk; (3) amino acid content of egg proteins; and (4) lipids.
Agr. Chem., Poul. 832

Mich. The Effect of High Voltage Cathode Ray Ionizing Radiation on Some Chemical Properties and on the Biological Value of Wheat Protein. To (1) determine if irradiation has an effect on availability of wheat protein to the animal body and (2) to study changes occurring in wheat protein as a result of irradiation.
Food and Nutr., Agr. Engin. 864

Minn. The Chemistry of Milk as a Colloidal System. 1. The Chemistry of the Proteins of Milk. To (1) determine the nature and extent of natural variations in the composition of milk and factors responsible for such variations, (2) isolate and characterize protein components of milk not as yet satisfactorily identified, and (3) study physico-chemical properties and behavior of systems of milk protein components.
Biochem. 1507

- Minn. Preparation and Preservation Factors in Relation to the Nutritive Value and Palatability of Meat. To study (1) the effect of different methods of cooking and the effect of reheating upon the vitamin content of meat; and (2) to determine the factors which the homemaker must take into consideration in order to have meat of good quality when preserving it by freezing storage.
Home Econ. 2003
- Minn. Nutritive Value, Quality, and Utilization of Minnesota Fruits and Vegetables. To (1) study the changes in nutritive value and quality which take place in fruits and vegetables during home cooking and (2) test the quality of Minnesota fruits for culinary uses.
Home Econ. 2004
- Miss. The Vitamin Content of Aztobacter Vinelandii.
To determine the riboflavin, thiamine, niacin, biotin, pantothenic acid, and vitamin B levels in Aztobacter vinelandii in fresh and stored preparations.
Home Econ. HJ-1
- Miss. Content of Essential Amino Acids in the Food of Seven to Nine Year Old Girls. To (1) learn the amounts of leucine, isoleucine, lysine, threonine, valine, methionine, tryptophan, phenylalanine, histidine, and arginine in the controlled normal diet of 7-9 year old girls.
Home Econ. HJ-2 (S-28)
- Miss. The Effects of Varieties, Curing, and Baking Time upon the Carbohydrate Content of Baked Sweet Potatoes. To determine (1) the rate of enzymatic inactivation and the effect of heat on firmness, texture, moisture, and nutritive content of baked sweet potatoes; (2) the effects of curing 7 and 14 days prior to baked roots; and (3) the amylose and amylopectin content of starch found in raw and baked roots and their relation to firmness, texture, and moisture.
Hort., Chem. HK-12, HF-4
- Miss. Qualitative Studies of the Yield and Nutritive Value of Southern Peas. To (1) determine the highest yielding varieties of southern peas; (2) determine the relative starch, sugar, and vitamin C content of better adapted varieties; and (3) study factors which affect processing quality of southern peas.
Hort. HK-16

- Mo. The Factors Affecting the Palatability and Nutritive Value of Poultry. To determine (1) the loss of water soluble organic material due to processing, (2) the possibility of nutritive loss due to packaging materials and storage conditions and (3) the amount of heat labile vitamins, essential amino acids in raw and cooked meat. Also to conduct palatability tests on poultry prepared by different processing methods and cooking procedures to learn which will produce better products.
Home Econ. 314
- Mont. The Comparative Value of Common Grain Combinations in Poultry Feeding.--II. For Quality, Palatability and Nutritive Value of Market Eggs. To determine comparative value of corn, wheat, oats and barley in cooking qualities, palatability and nutritive value of market eggs.
Poul. Indus., Home Econ. M. S. 813
- N. C. Microbiological and Chemical Changes Occurring in the Curing of Meat. To ascertain the role played by microorganisms and to follow certain changes occurring in the curing of meat.
Anim. Indus. H-15
- N. C. Riboflavin Content of Soybeans and Cowpeas.-- A.Growth Stimulants Associated with Riboflavin in Soybeans. To (1) find why rat-growth bioassay for riboflavin in soybeans yields values approximately twice those obtained by the photo-fluorometric method, and (2) isolate and determine the nature of interfering substances.
Anim. Indus. H-18
- N. C. Factors Influencing the Biosynthesis of Carotenoids by Yeasts. To (1) identify and characterize carotenoid pigments produced by various species of yeast and (2) learn the influence of cultural conditions on carotenoid production by yeasts in these genera.
Chem. 41
- N. C. The Effects of Environment, Curing and Storage on the Carotene and Ascorbic Acid Content of Several Varieties of Sweet Potatoes. To study the effect of variety and seed source, field arrangement, soil sampling, time and methods of planting, meteorological data, and time and methods of harvesting upon the nutritive value of sweet potatoes.
Hort. 84

- N. Dak. Chick Growth Inhibition by Linseed Hull and Cotyledon Fractions. To determine the location of inhibitors in relation to seed parts and to obtain information on the chemical nature of the inhibitor.
Agr. Chem. 2-3
- N. Dak. Breeding Tomatoes for Earliness, Yield, Size, Quality Ascorbic Acid Content and Disease Resistance. To develop improved tomato varieties or hybrids for North Dakota with respect to early maturity, yield, size and shape of fruit, quality, high ascorbic acid content, disease resistance, and adaptation to a wide range of soil and climatic conditions.
Chem., Hort. 12-3
- Nebr. The Nicotinic Acid, Pantothenic Acid, Biotin, Pyridoxine and Vitamin E Content of the More Important Kinds of Cheese. To determine the importance of cheese as a dietary source of these vitamins and to study the effect of changes in manufacturing and curing processes upon the vitamin values of these products.
Dairy Husb. 302
- N. H. Breeding Better Vegetables for New Hampshire-- To develop new varieties of vegetables having one or more superior qualities related to climatic adaptation, high nutritive value, production, appearance, and disease and insect resistance.
Agr. and Biol. Chem., Hort. 105 Home Econ. 54
- N. Y.
(Cornell) The Physiology and Metabolism of Fats and Related Constituents in Animals. To study the metabolism of fats and related constituents in lactation; and to establish basic factors influencing milk and fat yield and the nutritive value of the fats and related compounds of milk.
Anim. Husb. 61
- N. Y.
(Cornell) The Requirement of Poultry for the Components of the Vitamin B Complex.--A. The Isolation and Identification and Functions of the Unknown Components of the Vitamin B. Complex. To determine quantity of certain factors of the vitamin B complex required by chickens and their importance in practical rations.
Poul. Husb. 142A
- N. Y. The Identification of the Nitrogenous Constituents of Fruits and Vegetables in Relation to Maturity and Development of Quality for Processing. To study amino acids, peptides and related nitrogenous compounds occurring in plants, using primarily chromatographic techniques and to learn more about maturation and development of quality.
Home Econ., Food and Nutr., Veg., Agr. Econ. 4b

- Ohio. Development of X-Ray Diffraction Techniques for Plant Materials. To develop new techniques and modify existing ones for determining the presence and molecular structure of mineral salts in studies of mineral nutrition of plants.
For., Agron. 89
- Okla. Improvement of Sweet Potatoes by Breeding. To (1) develop better varieties of sweet potatoes including (a) greater production of marketable roots, (b) more attractive shape and color of roots, (c) greater nutritional value--especially carotene and ascorbic acid content, (d) disease resistance, especially stem rot, (e) improvement in keeping quality of roots and ability for sprout production, (f) development of varieties with habits adapting crop to mechanized handling, (g) development of highly productive high carbohydrate type for industrial use and feed; and (2) gain some knowledge of transmission of above characteristics from parent plant to its progeny.
Plant Path., Chem., Hort. 596
- Okla. Improvement of Vegetable Crops, Breeding and Selection of Lima Beans, Snap Beans and Tomatoes. To determine (1) ascorbic acid, total and reducing sugars, and titratable acidity of various breeding lines and parent stock of tomatoes and (2) the thiamine, riboflavin, ascorbic acid, and soluble and insoluble carbohydrate contents of various commercial varieties and breeding lines of lima beans.
Hort., Agr. Chem. 627-1
- Oreg. Carotene and Vitamin A Utilization and Storage in Dairy Cattle of Different Nutritional Backgrounds as Determined by Analyses of Liver Obtained Through Biopsy and Milk Fat and Blood. To study (1) the influence of natural feedstuffs thru the year on carotene and vitamin A content of blood, milk and liver of Jersey and Holstein cows; and (2) effect of carotene and vitamin A history of dams and grand dams on use and storage of vitamin A and carotene in calves.
Agr. Chem., Dairy, Vet. Med. 13-10
- Pa. A Study of Inherent Factors in Fruits and Vegetables Which Affect Conservation and Maintenance of Nutritive Value in Foods. To investigate the role of chemical entities known to have inhibiting or accelerating action on the destruction of nutrients, to identify factors in plant tissue which protect nutritive value and affect retention, and to investigate enzyme systems to determine predominant systems and means of stabilizing and/or destroying them.
Home Econ. 1093

- Pa. The Preparation of Honey for Market. To determine (1) the efficiency of existing equipment for processing honey and if necessary, to develop new equipment and (2) the effect of various processing temperatures on nutritive quality of honey, and to develop new honey products for consumer markets.
Zool. and Ent. 1133
- Pa. Physical and Chemical Properties of Fats and Fat Acid Derivatives in Relation to Their Composition, Structure, and Utilization. To (1) develop and improve techniques for the analysis of fats; (2) obtain more complete knowledge of structure and composition of various glycerides comprising each of the more common fats; (3) improve the usefulness of fats; (4) obtain more complete knowledge of physical and chemical characteristics of various fat acid derivatives; and (5) study fat deterioration and factors influencing such spoilage.
Agr. and Biol. Chem. 1188
- P. R. Nutritional Studies in the Puerto Rican Dietary. To determine levels of essential nutrients in foods used in the Puerto Rican dietary.
Biochem. and Nutr. 41
- P. R. Quality and Nutritive Value of Cantaloupes as Affected by Cultural Practices and Environmental Factors, Before Harvest and After Harvest. To determine the effects of environmental conditions and cultural practices on the composition of cantaloupes at harvest, after harvest and during storage.
Plant Phys. 117
- P. R. Chemical Composition and Nutritive Value of Coconut Oil and Defatted Cake. To determine (1) the chemical and physical characteristics of oil; (2) the fatty acid composition of oil by distillation and other procedures; (3) the coefficient of digestibility of oil using rats; (4) the composition of defatted cake and (5) the efficiency of protein in the defatted cake.
Biochem., Nutr. 119
- S. C. Food Value and Utilization of Sesame Meal. To (1) determine the vitamin content and general composition of sesame meals produced in various ways; (2) develop new recipes in which sesame meal is incorporated; and (3) determine the desirability of incorporating sesame meal into bread and other foodstuffs.
Nutr., Home Econ., Chem. 67

- S. Dak. A Study of the Nutritive Value and Use of South Dakota-Grown Fruits and Vegetables. To (1) study the nutritive value, especially vitamin content, of different varieties of fruits and vegetables grown in South Dakota; and (2) develop new ways of using less-well-known fruits and vegetables which grow wild or can be cultivated in home or commercial gardens.
Home Econ. 210
- Va. The Effect of Variety, Irrigation, Plant Spacing, and Leaf Pruning on Yield, Quality, and Vitamin Content of Broccoli. To study (1) the effect of irrigation, leaf pruning, and plant spacing on yield of broccoli; (2) plant-to-plant variation and the effect of variety on quality, yield, and vitamin content of broccoli.
Hort., Biochem. Nutr. 86024
- Va. The Effect of Herbicides on Crop Plants and Weeds. To determine (1) the effects of herbicides on food value, texture, flavor, enzymes, vitamins, and other quality measures of crop plants and (2) the mode of entry and processes involved in the killing action of herbicides on weeds and crops.
Plant Path., Phys. 93903
- Vt. Nutrient Value and Acceptability of Vermont-Grown Winter Squash. To determine (1) the vitamin A and vitamin C value of Vermont-grown winter squash and (2) the acceptability of different varieties of Vermont-grown winter squash.
Hort., Home Econ. 59
- Wash. Factors Influencing the Desirability and Nutrient Content of Meat and Meat Animals for Human Consumption. To determine the effects of (1) genetics, nutrition, and other factors on carcass quality of meat animals and on the quality and nutrient content of meat; and (2) storage, processing, and preservation on quality, nutrient content, physical structure, and economic value of meat and meat products.
Anim. Husb. 1161
- Wash. Lysine Content of Wheat Varieties, Species and Related Genera. To (1) verify lysine nature of proteins of certain wheat varieties, species, and related genera; (2) establish the relation of lysine content of wheat protein to the location where the plant is grown.
Agr. Chem., Agron. 1376

Wis. The Vitamin Content and Cooking Quality of Potatoes.
To study (1) distribution of vitamins in different parts of the tuber; (2) differences due to variety; (3) the effects of storage conditions and various processes of food preparation on the concentration of vitamins in potatoes; and (4) the influence of various factors on their cooking quality.

Home Econ., Genet. 671

Wis. Market Value and Nutritional Quality of the Meat From Livestock Receiving Stilbestrol. To determine (1) the effect of diethylstilbestrol added to various rations on carcass quality, weight gains and feed efficiency of beef cattle; (2) the effect of stilbestrol on nutritive value of carcass and (3) the effect of ingested stilbestrol on concentrations and distribution of fat, protein, water, vitamins, in beef cattle.

Anim. Husb., Biochem., Gen. 967

W. Va. Unidentified Growth Factors in Proteins. To (1) determine the presence of growth factors in partially-hydrolysed proteins as indicated by increased growth of various lactic bacteria; and (2) study by chemical, chromatographic, and microbiological assay, the properties and constitution of such growth factors.

Agr. Biochem. 5

W. Va. The Improvement of Apple Juice. To (1) fortify and improve apple juice by adding one or more natural constituents of apples; (2) evaluate several bitter-sweet and bitter-sour crab apple varieties, alone or in blends, for the improvement of flavor, body and nutritional value of apple juice; (3) determine tannin, total soluble solids, titrable acidity and vitamin C content of juice of crab apple varieties and (4) establish the chemical identity of flavor constituents of apple juice having desirable flavor characteristics.

Hort., Agr. Biochem. 21

FOOD HABITS AND CONSUMPTION PATTERNS

- Ala. Economics of Expanding the Market for Milk Through Schools.
To study and evaluate the economics of marketing milk through schools by selected methods as (1) learning costs involved by distributors in adjusting their container sizes and milk routes to better service various types of schools; (2) learn advantages and disadvantages of various container sizes and various sales methods including different types of dispensers, vending machines, and others to schools and to distributors; (3) learn the effect of flavored milk on consumption.
Agr. Econ. 573
- Storrs
(Conn.) Socio-Economic Forces that Influence the Potential Demand for Milk and Eggs by the Older Age Group. To determine the cultural and economic forces which would increase the use of milk and eggs by the older age groups to levels more nearly consistent with nutritional standards.
Agr. Econ., Home Econ. ES 322
- Ill. Opportunities for Expanding Milk Consumption in School Lunch Program. To (1) determine actual and potential consumption of milk in school lunch programs; (2) determine reasons for variation in milk consumption rates among schools; and (3) develop practical suggestions for expanding milk consumption in schools.
Agr. Econ. 05-341
- Mich. Nutritive Value of Food Purchased by a Sample of Lansing Families During a Five Year Period. To (1) study food purchase records of families to assess nutritive quality of diets, (2) analyze buying practices from the standpoint of contributions to the improvement of the nutrition of Michigan families and, (3) evaluate the ability of homemakers to select nutritionally adequate diets under varying socio-economic conditions.
Food and Nutr., Agr. Econ. 817
- Minn. Food Consumption and New Markets.-- To (1) measure relationships existing between food consumption and certain variables; (2) measure and evaluate possible new markets for food domestically and abroad, and to evaluate programs for reaching these markets; and (3) evaluate non-food uses or markets for agricultural commodities.
Agr. Econ. 1119

Miss.

Effectiveness of Specified Programs for Increasing Milk Drinking by Homemakers. To learn the relative effectiveness of four types of education programs on milk drinking by homemakers.

Home Econ. HJ-6

Wis.

Family Meal Planning and Food Purchasing Practices in Wisconsin. To (1) determine what the average homemaker knows about nutrition and what information sources she uses in purchasing and preparing food; (2) evaluate the influence of income, education, nationality, occupation, race, and age on level of nutrition knowledge; (3) develop an intensive program of nutrition education in regard to effective methods of changing attitudes toward foods and dietary habits; and (4) study actual purchasing and home production and use data for formation of recommendations concerning food purchasing procedures.

Home Econ. 919

INTERRELATIONSHIPS AND AVAILABILITY OF NUTRIENTS

- Ariz. Physiological Availability of Amino Acids and Other Nutrients in Foods and Feeds. To determine the physiological availability of amino acids in cereal grains and other foods or feeds.
Agr. Biochem., Agron. 258-A
- Ariz. The Influence of the Interrelationship of Food Factors upon Physiological Utilization of Carotene and Vitamin A. To determine the effects of different proteins, carbohydrates and other food factors on use of carotene or vitamin A.
Agr. Biochem. 271
- Ariz. Biological Availability and Interrelationships of Nutrients in Foods. To study effect of milk and milk constituents upon use of vitamin A and carotene.
Biochem., Plant Br. 313-2
- Calif. Functioning of the B Vitamins in Relation to the Intake of Other Nutrients. To (1) learn the extent to which the ability of fat to spare pyridoxine may be related to the ratio of protein intake to total food intake and (2) study effect of level of fat intake on the need for choline.
Home Econ. 1166A
- Colo. Antianemic-and Growth Factors as Related to Amino Acid Utilization in the Chick. To (1) determine physiological relationships between thyroid hormone, vitamin B-6 and B-12, and other related growth and antianemic factors and amino acid utilization and (2) isolate and identify compounds from natural sources which appear to be similar to the above factors.
Chem. 88
- Storrs
(Conn.) The Relationship of Vitamin B₁₂ and Ascorbic Acid to Protein Utilization in Human Subjects. To (1) observe the effects of supplementation with orally administered vitamin B₁₂ on the utilization of protein as measured by blood amino nitrogen, nitrogen retention, and hematological responses in subjects with nutritional anemia and (2) study the possible enhancing effect of ascorbic acid on activity of B₁₂.
Food and Nutr., Anim., Home Econ. 249 (NE-37)
- Del. Relationships in the Utilization and Metabolism of Protein and Vitamin B₆. To study the interrelationships between protein and vitamin B₆ in their effect upon blood concentration of vitamin B₆ and upon growth, food consumption, nitrogen retention, and hemoglobin value, and to learn the chronological sequence of biochemical defects when either nutrient becomes deficient in the diet.
Home Econ. 651C (NE-37)

- Fla. Investigation of Mineral Nutrition Problems of Livestock Through the Use of Laboratory Animals. To investigate mineral nutrition problems, including mineral interrelationships that occur in farm livestock.
Anim. Husb., Nutr. 346
- Idaho Relationship Between Cholesterol and Vitamin A Metabolism. Study interrelationship between serum vitamin A and serum cholesterol, and between serum carotene and serum cholesterol at different levels of vitamin A intake and high and zero intakes of cholesterol in laboratory animals.
Home Econ. 49
- Idaho Relation Between Cholesterol and Vitamin A Metabolism. To study interrelationships between serum vitamin A and serum cholesterol, and between serum carotene and serum cholesterol at different levels of vitamin A and cholesterol intakes.
Home Econ. 297
- Idaho The Effect of Varying Levels of Fat on Vitamin A and Cholesterol in the Serum. To study interrelationships between serum vitamin A and serum cholesterol and between serum carotene and serum cholesterol when the fat intake is varied.
Home Econ. 304 (W-44)
- Ill. Valuation of the Concept of Biological Value of Protein for Growth and Maintenance. To (1) study relationships between protein quality and the percentage of protein in the diet required to produce maximum gain at different levels of intake of protein and of energy, and (2) study relationships between biological value of protein, protein concentration in diet, and energy intake.
Anim. Sci. 20-306
- Ill. Proteins in Human Nutrition. To (1) study the biological value of proteins; and (2) the interrelationships between caloric intake and nitrogen metabolism.
Home Econ. 60-334
- Ind. Unrecognized Factors in Natural Feeds which Reduce Amino Acid Requirements. To isolate and identify factors in corn, wheat and other natural feeds which may reduce requirements for certain amino acids.
Biochem. 741
- Iowa Evaluation of Protein Nutrition and Basic Dietary Requirements: Role of Fat in the Regulation of Nitrogen Metabolism. To study the mechanism responsible for the nitrogen sparing effect of fats observed in animals subjected to double stress of protein and caloric deficiencies.
Home Econ., Dairy Indus. 993

- Kans. The Metabolism of Carotenoid Pigments and Vitamin A in Swine.--1. The Relative Efficiency of Vitamin A and Carotene for Reproduction in the Sow. To determine how effectively sows utilize carotene in reproduction.
Anim. Husb., Chem. 311-1
- Ia. Human Nutritional Utilization of Certain Dietary Essentials from Vegetable Sources. To learn the proportion in vegetables of the various nutrients which are absorbed and utilized by the human body.
Agr. Chem., Biochem. 561
- Mass. Influence of Dietary Levels of Protein and Certain Vitamins on the Metabolic Relationships of Tryptophan and Nicotinic Acid. To study the effect of different levels of dietary protein, tryptophan, riboflavin, and pyridoxine on the conversion of tryptophan to nicotinic acid in man.
Home Econ. 83 (NE-37)
- Md. Interrelationships in the Metabolism of Different Levels of Protein and Fat in the Diet of College Women. To learn effect of different levels of: (1) fat in diet on nitrogen retention and (2) protein and fat on calcium retention.
Home Econ. Y-1 (NE-37)
- Mich. Interrelationships of Protein, Calories and Amino Acids in the Nutrition of Aging Women. To (1) determine the intakes of some of essential amino acids in self-selected diets of aging women, and (2) study influence of calories, protein and amino acid intakes on nitrogen balance in aging women.
Food and Nutr. 532
- Mich. The Absorption of Zn^{65} in Pigs and Rats as Related to Dietary Calcium and Phosphorus. To study (1) the intestinal absorption of zinc in pigs and rats maintained on various levels of dietary calcium and phosphorus and (2) the mechanism involved in the therapeutic effect of zinc on parakeratosis pigs.
Anim. Husb., Agr. 825
- Mont. The Influence of Ascorbic Acid on the Conversion of Carotene to Vitamin A in the Animal Body.
To study the effect of level of intake of ascorbic acid on conversion of carotene to vitamin A in the rat and in the guinea pig under normal or optimal conditions and under suboptimal conditions with a restricted thiamine intake.
Home Econ. M. S. 845

- Mont. The Utilization of Beef Protein, Supplemented or Unsupplemented with Amino Acids, for Hemoglobin Regeneration in the Adult Rat. To study (1) the relative efficiency of beef protein, with and without amino acid supplements, for regeneration of hemoglobin following an induced standardized hemorrhagic anemia; (2) other incidental physiological changes that may result from these treatments.
Home Econ. M. S. 1038
- N. H. The Effect of Isocaloric Exchanges Between Protein and Fat on the Metabolic Interplay of Specific Blood Nutrients. To investigate, under controlled dietary conditions, the interrelationships between protein and fat and their effect on blood levels of methionine, hemoglobin, and choline, cholesterol, and lipid phosphorus.
Home Econ. 117 (NE-37)
- N. J. Relationships Between the Metabolism of Protein and Vitamin B₆ Containing Enzymes. To (1) study interrelationships between protein and vitamin B₆, including relationships between vitamin B₆ intake and transaminase activity of blood.
Biochem., Home Econ. 14 (NE-37)
- N. Mex. Biological Utilization of the Amino Acids in the Protein of Pinto Beans. To determine (1) biological value of amino acids of pinto beans and (2) the effect of changing relative amounts of amino acids and/or other dietary factors on use of amino acids of beans.
Home Econ. 82 (W-57)
- N. Y.
(Cornell) Dietary and Metabolic Interrelationships of Protein and Riboflavin. To (1) study the effects of different levels of dietary protein on biochemical responses of human subjects fed various levels of dietary riboflavin.
Food and Nutr. 173
- N. Y.
(Cornell) Dietary Protein and Lipid Metabolism in Man. To investigate the effects of different levels of dietary protein on selected biochemical responses of human subjects, fed a diet constant in fat content.
Home Econ. 227 (NE-37)

Ohio

The Relationship Between the Serum Protein-Bound Iodine and Plasma Cholesterol in the Bovine and Their Possible Application to Dairy Production. To study (1) the degree to which dietary sources of iodine may interfere with the specificity of the protein-bound iodine test as measure of thyroid activity in blood; (2) continue the study of the application of PBI test to (a) the detection of cows fed thyroprotein, and (b) the selection of cows that are hypothyroid and would most likely respond favorably to thyroid stimulation; (3) study the relation between PBI and cholesterol in blood along with eosinophil counts to measure possible adrenal cortex stress and (4) ascertain the degree of breakdown of protamone and other thyroidal substances in the rumen by microorganisms.

Dairy Sci. 13

Ohio

Effects of Diet on the Gastro-Intestinal Tract. To (1) study the effects of feeding carbohydrates and other dietary substances on the gastro-intestinal tract and (2) explore nutritional or other significance of diet-induced changes in gastro-intestinal organs.

Home Econ. 94-1

Oreg.

Relationship Between the Metabolism of Vitamin B₆ and the Metabolism of Tryptophan in Human Subjects. To establish ranges of normal values for the content of the coenzyme in the whole blood or white blood cells of healthy adults.

Home Econ. 124-7 (W-57)

Pa.

The Role of Antibiotics in Protein Metabolism and Growth. To investigate the effect of antibiotics on amino acid requirements, utilization of non-protein nitrogen and metabolism of monogastric animals.

Anim. Nutr. 1219

Pa.

The Initiation of Synthesis, Biological Stability and Mechanism of Formation of Adaptive Enzymes in Micro-Organisms. To (1) study the mechanism of induction of enzyme syntheses, (2) investigate in vivo stability of adaptive enzymes of cells under stresses and of availability of constituent amino acids for other syntheses and (3) study specific effects of environment on the formation of adaptive enzymes.

Biochem. 1253

Pa.

A Study of the Interrelationships of Pyridoxine, (Vitamin B₆) with Certain Organic and Inorganic Nutrients. To learn effect of experimentally induced B₆ deficiency on the metabolism of minerals and of certain energy supplying nutrients in rats.

Anim. Nutr. 1264

- R. I. Interrelationships of Protein and Ascorbic Acid Metabolism in the Aged. Under controlled conditions, to study relationships between protein and ascorbic acid metabolism as determined from nitrogen retention and ascorbic acid levels in blood and urine.
Home Econ. 455 (NE-37)
- Tex. Human Utilization of Ascorbic Acid from Vegetable Foods in Relation to Age and Body Size and to Environmental Temperature. To (1) determine vitamin C utilization from vegetable foods among those common in Southern diet; (2) observe the relation of age and body size to the level of ascorbic acid in blood; and (3) determine the response to dietary intake of ascorbic acid by same subjects in summer and winter.
Rur. Home Res. Econ. 825
- Tex. A Study of the Metabolic Interrelationships of Dietary Vitamins, Proteins, Amino Acids and Other Nutrients in the Chick. To (1) determine the effect of the level of dietary vitamins on the concentration of free amino acids in blood plasma and tissues of chicks; (2) determine the effect of complete and incomplete proteins with and without amino acid supplements on the concentration of free amino acids in blood plasma and tissues of chicks; and (3) correlate changes in concentration of free amino acids in blood plasma and tissues with growth of chicks.
Biochem. , Nutr. 972
- Utah The Effect of Kind and Amount of Fat in the Diet on Blood and/or Tissue Cholesterol in Rats and Other Laboratory Animals and in Humans. To study (1) the effect of kinds and amounts of fat on tissue and blood cholesterol laboratory animals and (2) the effect of kinds and amounts of fat on blood cholesterol of human beings.
Food and Nutr. 476 (W-44)
- Vt. Interrelationships of Protein and Ascorbic Acid Metabolism in Man. To study interrelationships in the metabolism of protein and ascorbic acid in human nutrition.
Home Econ., Biochem., Anat. 57 (NE-37)

- Wash. The Interrelationships of the Various Nutrients as They Affect the Dietary Needs of Human Subjects. To (1) investigate the interdependence of components of the human dietary as they may affect use and requirements; (2) investigate interrelationships of nutrients on the degree and kind of biosynthesis of B-complex vitamins in humans; and (3) compare interrelationships as observed with human subjects and with laboratory animals.
Home Econ. 824
- Wash. The Metabolism of Selected Dietary Constituents as Affected by Ascorbic Acid. Study (1) the metabolism of such dietary constituents as riboflavin, vitamin A, carotene, and ascorbic acid as affected by varying intakes of ascorbic acid and (2) the effect of high and low calorie intake on the above.
Home Econ. 1013
- Wis. The Effect of Various Dietary Factors on Protein Utilization. To study protein and/or amino acid requirements in human beings as influenced by total calories; source of non-protein calories, and protein composition.
Home Econ., Biochem. 757
- Wis. The Effect of Diet Composition on Certain Blood Constituents. To (1) study the effects of different dietary regimens on activity of enzyme, xanthine oxidase, in the blood and (2) correlate these effects with other biochemical effects known to be related to these dietary conditions.
Food and Nutr. 994
- W. Va. The Influence of Autoxidized Fat in the Diet of Protein Requirements. To study (1) the effect of rancid fat on use of proteins as measured by weight gains, efficiency of food use and nitrogen retention; (2) changes in gastro-intestinal tract, produced by rancid fat in diet and (3) the effect of individual amino acids given as supplements to experimental diets containing rancid fat.
Agr. Biochem. and Nutr., Home Econ. 118 (NE-37)
- Wyo. Effect of Various Carbohydrates on the Utilization of the Amino Acids by Rats. To study the effect of different sources of carbohydrate on use of selected amino acids.
Home Econ., Agr. Res., Chem. 683 (W-57)

METABOLISM AND REQUIREMENTS FOR NUTRIENTS

Proteins and Amino Acids

- Ala. Amino Acid Imbalances and Other Factors Affecting the Metabolism of Amino Acids in Microorganisms and Animals. To (1) produce amino acid imbalances in certain organisms and study underlying causes as well as the means to prevent or correct the condition; (2) investigate with microorganisms and animals possible metabolic relationships of nutrients and L and D forms of amino acids and (3) determine the relation of protein and amino acids to fatty liver development.
Anim. Husb., Nutr. 206
- Ariz. Amino Acid Proportions and Biological Utilization of Proteins in Sorghum Grains. To study amino acid proportions and biological utilization of sorghum grain proteins and the effects of variety and fertilization upon amino and proportions and utilization.
Agr. Biochem. 313-2 (W-57)
- Calif. Metabolic Interrelationships of Protein and Pyridoxine (B₆). To study the metabolism of individual amino acids by pyridoxine-deficient animals fed diets containing different levels of protein.
Home Econ. 1752 (W-57)
- Ga. The Requirements and Utilization of Iron, Niacin, Tryptophan, Cystine, Glutamic Acid, and Tyrosine and Their Inter-relationship with Other Nutrients in Preadolescent Children. To study the metabolism of iron, niacin, tryptophan, cystine, glutamic acid, and tyrosine in preadolescent children on controlled dietary regimens to develop more precise standards for nutrient needs of children of age group.
Home Econ. 83 (S-28)
- Ind. Protein and Amino Acid Requirements of Humans. To determine the requirement and utilization of proteins and amino acids for human beings.
Biochem., Home Econ. 478
- Iowa Amino Acids in Nutrition. To study the metabolism of nitrogen in protein-depleted rats.
Home Econ. 995

Iowa

Evaluation of the State of Nutrition of the Older People of the Population and Estimation of Dietary Needs. To study at intervals, selected subjects from a group of older women to evaluate the significance of effects of aging on dietary needs and nutritional status; to study the energy requirements of older women as a basis for recommending caloric allowances; to study factors which affect requirements and utilization of protein and amino acids by older people; and to study continuous calcium metabolism of older people.

Home Econ. 1028

Ia.

Metabolic Balances of Preadolescent Children. To ascertain metabolic patterns of preadolescent children on controlled dietary regimes, and to arrive at more precise standards than now exist for the requirements of selected nutrients.

Home Econ., Agr. Chem., Biochem. 803 (S-28)

Ia.

Nitrogen Balance and its Interrelationship with Other Nutrients in Preadolescent Children. To gather systematic data on the utilization of, and requirements for, nitrogen in preadolescent children under controlled dietary conditions; and to use the findings in assessing nutritional requirements of preadolescent children for proteins.

Home Econ., Agr. Chem., Biochem. 828 (S-28)

Mass.

Tryptophan Metabolism in Human Subjects. To study (1) the rate of absorption by blood and rate of urinary excretion of test doses of L-tryptophan by human subjects; and (2) the rate of formation of certain metabolites of tryptophan.

Home Econ. 82

Mich.

An Evaluation of Regression Curves in Estimating Protein Requirements. To (1) establish regression curves for rats in a maintenance area using egg protein to supply reference dietary nitrogen; (2) study the effect of varying feeding regimens on responses of animals to reference diets and (3) compare regression curves of animals on test diets with those on reference diets.

Food and Nutr. 821

Mo.

Protein Requirements of Animals Including Man. To study protein-protein imbalance and protein-amino acid imbalance conditions.

Home Econ. 318

Nebr.

The Amino Acid Requirement of Women and the Utilization of These Amino Acids from Common Food Sources. To (1) investigate the requirements of normal women for essential amino acids from the standpoints of (a) the quantity of each essential amino acid needed; and (b) the effects of interrelationships among various amino acids, and (2) determine the utilization of essential amino acids from common foods such as meat, milk, egg, and cereal.

Home Econ. 394

N. J.

Isolation of Amino Acid-Nucleotide Complexes and Determination of Their Structure and Role in Protein Biosynthesis. (1) Isolate from ribonucleic acids the group of compounds that contain a ribonucleotide attached to an amino acid; (2) fractionate these compounds; (3) learn their structure and nature of the nucleotide-amino acid linkage; (4) study role played by these substances in protein biosynthesis.

Biochem. 1

Okla.

The Phenylalanine Replacement Value of Tyrosine for Growth. To determine the quantitative replacement value of tyrosine for phenylalanine and compare the biological value of casein with purified amino acids by studying utilization of nitrogen and energy from these diets.

Home Econ. 890

Okla.

Urinary Excretion of Twelve Amino Acids by Preadolescent Children. Study amount of arginine, cystine, glutamic acid, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tyrosine, and valine in urine of 7-9 year old girls; relate findings to findings of other researchers relative to level of amino acid intake and excretion of other nutritional factors as niacin, B₁₂, pyridoxine, and riboflavin.

Home Econ., Chem. 1004

Pa.

The Relationships Between the Quantity and Quality of Dietary Protein and Their Effects on the Energy Metabolism of Humans. To study the effects of variations in quantity and quality of dietary protein on the diurnal curve of heat production, the height and duration of specific dynamic effect, and on the efficiency of energy utilization of the diet.

Anim. Nutr., Foods and Nutr. 1160

- Wis. Protein and Amino Acid Requirements in Human Metabolism.
To study the effect of the amino acid content of foods and their distribution in the day's meals upon the protein needs of various age groups.
Home Econ., Biochem. 773

Vitamins

- Colo. A Study of the Mechanisms of Metabolic Reactions as Influenced by Minor Constituents or Chemical Additives in Feeds or Foods. To investigate metabolic reactions of selected microorganisms as affected by certain chemical additives and minor food constituents used in nutrition.
Chem. 87
- Ill. Nutritive Requirements of Humans. To determine, by means of balance studies on human subjects, requirements for various food nutrients; to investigate the influence of the amount and quality of protein consumed by college women on riboflavin and niacin requirements.
Home Econ. 60-335
- Ind. Pathways of Metabolism of Vitamin A and Provitamin A. To (1) develop radioisotopic and other techniques for the study of carotene metabolism and (2) study the relationship of various precursors and metabolites to carotene metabolism.
Biochem. 904
- Iowa Sulfonated Steroids in Nutrition. To (1) elucidate the action of antirachitic vitamins; (2) determine the location of the sulfonic acid group in antirachitic cholestetraene sulfonic acid; (3) synthesize analogous derivatives with and without radioactive carbon and (4) determine the biological activity of such derivatives.
Chem. 1115
- Ky. Requirements and Utilization of Thiamine and Riboflavin by Preadolescent Children. To determine thiamine and riboflavin requirements of preadolescent children living under a controlled regime.
Home Econ. 503 (S-28)
- Ia. Human Metabolism of Carotene and Vitamin A. To (1) ascertain metabolic patterns of carotene and vitamin A in human beings under controlled conditions; (2) compare human patterns with those of animals and (3) ascertain factors and conditions which affect, or are related to, the metabolism of carotene and vitamin A.
Agr. Chem., Biochem., Home Econ. 829

Minn.

The Relation of Nutrients to Metabolic Processes.

To study the metabolic function of vitamin E, including (1) the possible importance in enzymatic oxidation-reduction processes of a primary oxidation product of vitamin E which has already been recently discovered and isolated in this laboratory, and (2) the relation of vitamin E to oxidative phosphorylation processes in the organism; to study the role of potassium in metabolic phosphorylations associated with the utilization of glucose; to study the possibility that thyroxine may form a reversible oxidation product; and to study nitrogen metabolism in the early postnatal period.

Agr. Biochem. 1508

Nebr.

The Pantothenic Acid Requirement of College Women and Dietary Interrelationships Which May Affect This Requirement.

(1) To determine the pantothenic acid requirement of college women consuming a controlled diet; the effects of changes in the quantity of other specific nutrients provided by the diet, and conversely, the effects of changing in the pantothenic acid content upon the metabolism of the other nutrients in question. (2) Establish criteria for assessing nutritional status of individuals with regard to pantothenic acid.

Home Econ. 552

N. Y.

(Cornell)

Phospholipid Metabolism and Vitamin B₁₂. To study the possible biochemical role of B₁₂ in phospholipid metabolism.

Biochem., Home Econ., Anim. Husb. 74

Oreg.

Vitamin Requirements of Humans.--5. Distribution of Riboflavin in the Various Fractions of Human Blood.

To (1) separate human blood into its various fractions; and (2) analyze the various fractions of human blood for free and total riboflavin.

Home Econ. 124-5

Oreg.

Distribution of Diphosphorpyridine Nucleotide in Various Fractions of the Blood of Humans in Relation to the Excretion of Nicotinic Acid and its Metabolites. To

study (1) the concentration of DPN in red blood cells, white blood cells and serum of human subjects; (2) the amount of nicotinic acid and its metabolites excreted in urine (3) the excretion of nicotinic acid in relation to the concentration of DPN in the serum, red blood cells and/or white blood cells.

Home Econ. 124-6

- Oreg. Vitamin Requirements of Humans.--III, Riboflavin Requirements of Adults. To study the concentration of riboflavin in urine and serum of subjects maintained on a controlled diet.
Home Econ. 124-III
- Oreg. Relationship Between Serum Riboflavin and Serum Cholesterol in Humans. To study (1) daily degrees of individual variation in serum riboflavin and serum cholesterol on controlled dietary intakes; (2) relationships between serum riboflavin concentrations and serum cholesterol concentrations.
Home Econ. 296 (W-44)
- Pa. Ascorbic Acid Metabolism of the Human. To investigate human ascorbic acid requirements and factors affecting them such as age, weight, and possible basal metabolism.
Home Econ. 1117

Fats

- Ky. Influence of Choline and Riboflavin on Some Aspects of Fat Metabolism. To observe (1) if a correlation exists between fat deposition and the choline and riboflavin content of the liver; and (2) the interrelationship, if any, between choline riboflavin and fat transport through the liver.
Home Econ. 501
- Maine The Effect of the Essential Fatty Acids on Protein Utilization. To study the effect of essential fatty acids on the utilization of vegetable proteins in balanced combinations and when supplemented with appropriate amino acids.
Home Econ. 95 (NE-37)
- Tex. The Chemistry and Metabolic Behavior of Naturally Occurring Fats and Fatlike Substances. To devise methods of analyses to study the chemical structure and to investigate biochemical behavior of fatty substances.
Biochem. and Nutr. 609

Minerals

- Calif. Production and Exploration of Ataxia Due to Manganese Deficiency in small Experimental Animals. To study unexplored structural and/or chemical differences between manganese deficient animal with ataxia and animals receiving manganese.
Home Econ., Anim. Husb. 1638

- Colo. Mineral Nutrition and Biological Efficiency of Livestock Production Phase I. The Progressive Variation of the Calcium: Phosphorous Ratio in Growth, Maturation and Fattening. To study (1) the nature of the metabolic calcium-phosphorus ratio variation with changing age; (2) the relationship of calcium-phosphorus ratio with the nature and degree of fattening; (3) the biochemical role of calcium fat deposition; and (4) effect of calcium digestibility and rate of movement of injesta through the alimentary tract.
Anim. Indus. 120
- Fla. Transfer of Mineral Elements Through the Placenta and Their Distribution in the Fetus. To determine the rate and extent of placental transfer of selected mineral elements and to determine distribution of those elements in the fetus.
Anim. Husb., Nutr. 566
- Fla. Effect of Dietary Practices on the Morphology of the Skeleton of Aged Men and Women. To determine effect of dietary practices on mineralization of the skelton.
Home Econ. 625
- Fla. The Effect of Dietary Level of Calcium or Phosphorus upon Rate of Exchange of Bone Mineral. To study the effect of varying calcium and of lowering either calcium or phosphorus levels in the diet on the rate of exchange of bone mineral.
Home Econ. 789
- Idaho The Effects of Air Pollution by Fluorine on Plants, Animals, Soils, and Water Supplies. To learn the effects of air pollution by fluorine on plants, animals, soils and water, and to study effects of low levels of fluorine on fundamental physiological processes in plants.
Agr. Chem., Agron. 293
- Ill. Studies of Trace Mineral Requirements and Metabolism in Animals. To investigate requirements for functions and metabolism of trace mineral elements in several species of animals.
Anim. Nutr., Anim. Sci. 20-359
- Ind. Iodine Requirements of Animals and Factors which Influence Iodine Utilization. To (1) determine the iodine requirements of laying hens and effect of prolonged iodine deficiency and (2) isolate, characterize, and determine the mode of action of substances from certain feeds which modify thyroid activity of rats and young chickens.
Biochem., Poul., Anim. Husb. 832

- Kans. The Absorption and Excretion of Iron in Adolescent Girls; The Effect of Chocolate upon the Absorption. To (1) investigate the use of iron supplied in adolescent girls' diets and (2) study the effect of the addition of chocolate to the diets and (3) determine if iron intake meets needs of girls or to recommend levels of intake for this age group.
Home Econ. 507
- Minn. The Effect of the Level of Protein Intake on Calcium Utilization in Young Women. To study the effect of varying the level of protein intake on the use of calcium and phosphorus by young women.
Home Econ. 2001
- N. Y.
(Cornell) A Study of the Effect of Customary High and Low Calcium Intakes on the Amount of Calcium Retained. To study the effect of previous dietary calcium level on the absorption of calcium from a diet low in that nutrient.
Home Econ. 107
- N. Y.
(Cornell) The Ability of Human Beings to Adapt to Levels of Phosphorus Lower Than Their Customary Intake. To study the adaptability of human beings to various levels of phosphorus intake.
Food and Nutr. 202
- Ohio Calcium and Phosphorus Metabolism Studies of College Women. To study the effect of factors contributing to variability in the retention of calcium of college women receiving the same level of calcium of intake over a period of years.
Home Econ. 28
- S. Dak. Selenium Poisoning. To (1) obtain basic information on biochemistry and physiology of selenium toxicity in animals; (2) determine methods to counteract toxicity of selenium; (3) adapt information now available and that obtained through objective 2 on factors which alleviate selenium toxicity and (4) study the metabolism of selenium by plants, to establish chemical forms of selenium in plants and determine toxicity of compounds isolated.
Anim. Husb., Biochem. 19
- Tenn. The Utilization and Requirements for Calcium, Phosphorus and Magnesium and Their Interrelationship with Other Nutrients In Preadolescent Children. To gather systematic data on metabolism of calcium, phosphorus and magnesium in preadolescent children on controlled dietary regimes; to determine more precise standards for the nutritional requirements of the age group studied for these nutrients.
Home Econ. 110 (S- 28)

Utah

The Effects of Fluorides on Certain Enzymes Present in Selected Plant and Animal Tissues. To (1) investigate the general physiological basis of fluorine toxicity in plants; (2) learn the effects of different levels of soluble fluorides, enzymes involved in metabolism in selected plant tissues of known genetic origin; (3) learn the effects of different levels of soluble fluorides on enzymes involved in metabolism in selected animal products, blood, bone marrow, liver, kidney, heart, and other muscles of various farm animals fed under known conditions and (4) correlate possible changes in enzyme systems with histo-chemical changes which occur in plants and animals exposed to different levels of soluble fluorides.

Bot., Plant Path., Anim. Husb., Dairy Husb. 457

Va.

Micronutrient Elements.--Balance Studies in Preadolescent Children. To study intake and excretion level of copper, cobalt, manganese, zinc, and molybdenum in children 6-9 years, consuming a controlled, normal diet.

Home Econ., Biochem., Nutr. 86078 (S-28)

Wis.

Mineral Metabolism and Mineral Requirements of Animals. To study (1) the effect of mineral supplements of various kinds on animals fed low lime rations; (2) the role of inorganic compounds containing such elements as iron, copper, nickel, cobalt, zinc, and manganese, and (3) factors responsible for nutritional anemia and effect of various inorganic elements and compounds in correcting such anemias. Fundamental investigations on the phenomena of hemoglobin building on the body will be continued.

Chem., Anim. Husb. 8

Energy

Ariz.

The Effect of Warm Climate on Basal Metabolism and Blood Saturation Levels of Ascorbic Acid. To determine (1) seasonal blood renal threshold values and saturation levels of ascorbic acid, and (2) relationships between blood saturation levels of ascorbic acid and basal metabolism.

Home Econ. 370

Ariz.

The Relation of Warm Climate to Basal Metabolism and Blood Cholesterol. To study relationships among blood cholesterol, basal metabolism and serum protein-bound-iodine.

Home Econ. 420 (W-44)

- Mich. The Energy Expenditures of Older Women. To investigate energy requirements of aging women and to measure energy expenditure of older women when at rest, sitting, standing or performing simple household tasks.
Food and Nutr. 79
- Minn. The Heat of Combustion of Food and Excreta of Older Women Living on Self-Selected Diets. To investigate energy metabolism of older women by studying heat of combustion of excreta and of food composites prepared from weighed self-selected diets.
Home Econ. 2015
- Mo. Factors Affecting the Metabolic Expenditure of Animals Including Man. To study (1) the influence of the composition of diet on metabolism; (2) the influence of activity on energy expenditure on self selected and experimental diets and (3) the cumulative influence of dietary components.
Home Econ. 317
- Pa. The Relationships Between the Quantity and Quality of Dietary Protein and Their Effects on the Energy Metabolism of Humans. To study the effect of variations in quantity and quality of dietary protein on the diurnal curve of heat production; the efficiency of energy utilization of the diet.
Anim. Nutr., Foods and Nutr. 1160 (NE-37)
- Pa. The Effects of Specific Food Nutrients on Energy Metabolism. To investigate the effects of diets, foods, and food constituents on the heat production of animals.
Anim. Nutr. 1187
- Cholesterol
- Calif. Relation of Food Intake to Tissue and Serum Cholesterol. To study the extent to which variation of total food intake may alter the cholesterol level of the serum and certain tissues in cholesterol-fed and control laboratory animals.
Home Econ. 1644 (W-44)

- Colo. The Effect of Selected Dietary Constituents and Environmental Factors in Cholesterol Metabolism. To study (1) the effect of varying amounts of riboflavin on the cholesterol content of serum and tissues and the development of atherosclerosis in experimental animals fed purified diets; and (2) the effect of dietary vitamin D and of ultraviolet irradiation of the rat and/or chick on the production of atherosclerosis, and on the cholesterol content of blood serum and of liver tissue.
Home Econ. 241 (W-44)
- Hawaii Serum Cholesterol Levels Among Several Racial Groups in Hawaii. To compare serum cholesterol levels of people of Caucasian, Chinese, Japanese, and part-Hawaiian ancestry with reference to dietary fat and cholesterol intake.
Food and Nutr. 523 (W-44)
- Idaho Relationship Between Cholesterol and Vitamin A Metabolism. Determine interrelationship between serum vitamin A and serum cholesterol, and between serum carotene and serum cholesterol at different levels of vitamin A intake and high and zero intakes of cholesterol in laboratory animals.
Home Econ. 297
- Mont. Cholesterol Metabolism as Influenced by Animal and Vegetable Fats. (1) To study cholesterol metabolism of mature rats receiving a butterfat and a vegetable fat diet which have been reported to increase and decrease respectively the serum cholesterol in humans and the combinations of the fats to learn what percentage of animal fat can be substituted for vegetable fat without elevation of blood cholesterol and/or hepatic storage, and (2) study the effect on arterial blood pressure of feeding diets high in vegetable or animal fats from time of weaning until ceasing of rapid growth, followed by normal diet for 6 months.
Anim. Indus M.S. 976 (W-44)
- Pa. Isolation and Identification of Intermediates in the Metabolic Degradation of Cholesterol. To (1) identify some of metabolic intermediates in the synthesis and degradation of cholesterol in animals and (2) ascertain relative rates of conversion of these metabolic intermediates in various organs and tissues of animals.
Agr. and Biol. Chem. 1341

Hormones

- N. J. Thyroid and Related Hormonal Control of Tissue Lysozyme and Tyrosine Oxidase Activities. To define (1) the mechanism of inhibition of kidney lysozyme by thyroid hormone; (2) the mechanism of inhibition of liver tyrosine oxidation by thyroxin and thyroxin analogs; and (3) the mechanism of inhibition of liver tyrosine oxidation by epinephrine and its analogs.
Agr. Biochem. 19

NUTRITIONAL STATUS

- Calif. Nutritional Status of Population Groups in Selected Areas in California. To investigate nutritional status as affected by diet and environmental conditions such as soil, climate and water, and to conduct chemical and biological tests on the food and water obtained; to investigate human nutritional requirements as deduced from the surveys and from additional planned work with human subjects.
Home Econ. 1345
- Hawaii A Study of Growth, Dental Caries and Diet. To study the possible relationships between stature dental conditions and dietary factors.
Home Econ. 515-1
- Ill. The Nutritional Status and Dietary Needs of Older People. To study dietary patterns and nutritional status of older women among various population groups in Illinois.
Home Econ. 60-337
- Iowa Nutritional Status of Iowa School Children: The Relationship of Nutrition to the Growth and Development. To study (1) the usual nutrient intake of school girls over a 3-year period together with measurements of body size and estimations of concentrations of blood constituents that may reflect nutritional state; (2) the acceptance of certain foods and the extent to which a carefully planned supplementary feeding program might improve diet and nutrition; and (3) growth physical fitness, blood composition, bone age, and general achievement of girls who have received food supplements.
Home Econ. 1021 (NC-5)
- Kans. The Nutritional Status of School Children. To (1) determine the relationship of nutritional status to dietary intake of school children; (2) to study the effects of a continuing program of good nutrition on children as determined by clinical, physical and biochemical measurements; (3) study food habits and their relation to food acceptance; and (4) determine significance in terms of growth, development, and state of health of present nutritional status measurements.
Home Econ. 272 (NC-5)

- Minn. The Blood Picture of Youths Participating in 4-H Club Programs. To study (1) the establishment of normal hematologic standards for adolescent boys and girls; and (2) typical diets for establishing desirable levels of intake of the essential nutrients for adolescent boys and girls.
Home Econ. 2002
- Minn. The Nutritional Status and Dietary Needs of Older People. To evaluate the significance of effects of aging on nutritional status and dietary needs; to study energy requirements of older women as basis for recommending caloric allowances; and to study factors affecting requirements and use of protein and amino acids of older people.
Home Econ. 2009
- Minn. The Blood Picture of Infants in a Well-Baby Clinic, With Observations on the Effects of Substituting Potato for Cereal as the First Solid Food in the Infant's Diet. To (1) establish normal values for certain factors in the blood of Minnesota infants by measuring the hemoglobin level, red cell count, white cell count, and red cell diameter on a group of infants receiving constant pediatric care and (2) determine the effect on the blood picture of substituting potato for cereal as the first solid food in the infant's diet.
Home Econ. 2010
- Mo. Nutritional Status of Older Women. To study (1) thiamin, riboflavin and niacin content of the diets of older women in relation to blood levels and urinary excretions; (2) the retention of calcium, phosphorus, and nitrogen by healthy older women and (3) the energy intakes and expenditures of healthy older women.
Home Econ. 95
- Mont. Nutritional Status and Dietary Needs of Population Groups in Selected Areas of Montana. To investigate nutritional status as affected by diet and environmental conditions in certain selected areas of Montana.
Home Econ. M. S. 863
- Nebr. The Nutritional Status and Dietary Needs of Older Men and Women. To (1) determine nutritional intake of men and women 65 or older as to (a) quantity and quality of protein ingested and effect of distribution of nitrogen and essential amino acids among the 3 meals on nitrogen balance, caloric intake on nitrogen balance, protein intake on mineral balance, (b) quantity of fat consumed, (c) calorie intake, (d) certain other nutrients, including ascorbic acid, vitamin B₁₂, etc., and (2) investigate dietary needs of older men and women by increasing specific nutrients or foods that seem to be limiting and redistributing nutrients among the three meals.
Home Econ. 492

- N. Mex. The Effect on Nutritional Condition of Adding Non-Fat Dry Milk Solids to Inadequate Diets of Pre-School Children. To study the effect of adding non-fat dry milk solids to an inadequate diet as shown by: physical examination, x-rays of bone and determination of certain blood constituents.
Home Econ. 20
- N. Mex. Nutritional Status of Population Groups in New Mexico. To (1) investigate the nutritional status of people as affected by diet and environment, (2) conduct chemical and biological tests on food and water from regions of deficiency, and (3) investigate nutritional requirements as deduced from the surveys.
Home Econ. 55
- Ohio The Nutritional Status of School Children: The Effectiveness of an Improved Diet. To determine the effect of supplementation of diets on certain clinical and physical measurements of children consuming them and the food habits of children as related to food acceptance.
Home Econ. 61 (NC-5)
- S. Dak. Nutritional Status and Dietary Needs of Older People in South Dakota. To (1) study factors affecting the requirement and utilization of protein and amino acids by older people; (2) secure further data on basal metabolism of women over 60; and (3) re-examine at suitable intervals subjects from group of older women to evaluate the significance of effects of aging on dietary needs and nutritional status.
Home Econ. 178
- Tenn. Bone Density Measurements as a Method of Assessing Calcium and Phosphorus Status. To gather systematic data from bone density measurements on different age groups under different dietary regimes in both rats and humans.
Home Econ. 108
- Tex. Body Measurements of Native-Born White Children in Four Localities of Texas. To determine, with respect to locality and occupation class, differences in body measurements of native-born white children 6-15 years of age in four localities in Texas.
Rur. Home Res. 664
- Wyo. Nutritional Status of the Aging Relationship Between Altitude and Serum Cholesterol Level. To learn effects of increased altitude upon various blood constituents, including serum cholesterol level in relation to diet and aging.
Home Econ., Agr. Res., Chem. 601

RELATION OF NUTRITION TO GROWTH, REPRODUCTION,
DISEASE AND OTHER STRESS CONDITIONS

- Fla. The Effect of Carotene or Vitamin A Deficiency in Young Rats on Subsequent Life Pattern. To determine if either long or short time depletion of vitamin A in the white rat has any effects which lasts after removal of the deficiency.
Home Econ. 569
- Fla. Dietary Habits and Kidney Function of the Aged. To study the effect of past and present dietary habits upon kidney function of aged men and women.
Home Econ. 757
- Hawaii The Effect of Diet Modifications upon Dental Caries in the Albino Rat. To (1) study some factors that may be predisposing causes of dental caries; (2) investigate the effect of diets high in taro, rice (brown and white) and wheat flour on the occurrence of dental caries and (3) determine the effects of soft drinks and/or acid fruit beverages on dental caries incidence when various diets are fed.
Food and Nutr. 519
- Ill. Nutritional Aspects of Aging in Animals. To (1) evaluate the impact of aging in animals on requirements for, and metabolism of, certain nutrients; (2) study the effect of age upon the intestinal absorption of thiamine- C^{14} , cyanocobalamin- Co^{60} , and Ca^{45} , the synthesis of the coenzyme forms of thiamine; the occurrence of "bound" and "diffusible" calcium in muscle and liver; the uptake of calcium by the bones and digestibility of protein nitrogen.
Animal Sci. 20-357
- Iowa Evaluation of the Requirements for Normal Reproduction in the Rat; Factors Influencing Liver Composition. To (1) evaluate factors influencing the amount of fat found in rat livers during reproduction; (2) study the concentration of various vitamins in maternal liver as a result of modifications in ration, and (3) determine if activities of several enzyme systems are related to these vitamin concentrations.
Home Econ. 1061
- Iowa Interrelation of Certain Vitamins in the Maintenance of Normal Growth and Reproduction in Rats and in Guinea Pigs. To explore interrelations among various vitamins by using growth or reproduction to increase the requirements for these nutrients; particularly to determine the interrelationships of pantothenic acid and vitamin C in metabolism by (1) observing histological and chemical changes in tissues of growing guinea pigs when intakes of vitamin C and pantothenic acid are varied independently and (2) measuring excretion of vitamin C and pantothenic acid in urine when intakes of both vitamins are varied.
Home Econ. 1213

- Iowa A Study of Congenital Abnormalities Heretofore Unassociated with Avitaminosis E. To (1) study conditions conducive to greater incidence of congenital abnormalities due to vitamin E deficiency by use of conventional depletion procedures and dietary supplementation with E inhibitory agents; (2) study the effect of different therapeutic levels of E during gestation on abnormality; (3) study the variability of fetal response in same uterus; (4) study the effect of different stages of abnormality on postnatal survival and development; (5) study the time of inception of abnormalities during fetal development; (6) the order in which tissues are adversely effected and (7) study the principal chemical and physiological disturbances.
Chem., Home Econ., Anim. Indus. 1291
- Kans. Biochemistry and Physiology of Egg Formation. Study relationship of (1) high-phosphorus high-lipid containing components of blood serum to egg formation and of various endocrine secretions to fluctuations in amounts of these substances and (2) the effects of natural and artificially induced variations of light and temperature on these substances and on egg formation.
Chem., Poultry Husb. 503
- Mass. Growth and Reproduction of Rats Maintained on Natural All-Plant Rations. To formulate an all-plant ration, unfortified with synthetic vitamins or amino acids that will support successive generations of albino rats, or to determine the smallest amount of an animal product that will correct the deficiencies in the all-plant ration.
Home Econ. 135
- Mass. Effect of Pregnancy and Administration of Ovarian Hormones on the Content of Pyridine Nucleotides in Rats's Livers. To study the effects of pregnancy and the administration of progesterone and estrogen on changes in the body's reserves of the functional forms of nicotinic acid.
Home Econ. 154
- Mich. Nutritional Status of Women.--IV. Nitrogen and Calorie Utilization During Weight Gain or Loss. To study (1) the utilization of nitrogen and calories of underweight and overweight individuals when their respective weights are static; (2) nitrogen and calorie utilization during weight loss or gain; (3) basal calorie output during weight loss or gain and any changes in metabolic rates and (4) the utilization of calories and nitrogen during a period of weight maintenance following gain or loss.
Home Econ. 18-4

- Mich. Nutritional Status of Women. VI. Further Investigation of the Dietary Patterns and Food Habits of Women with Active and Arrested Tuberculosis. To (1) continue studies of nutritional adequacy of diets of a group of tuberculous women, and (2) investigate possible relationships between dietary habits of tuberculous women and the control of the disease.
Food and Nutr. 18-VI
- Minn. The Effect of Maternal Nutrition on Development, Growth and Performance of the Young. To study the effects in laboratory animals, of maternal dietary restrictions on the development, growth and performance of young.
Agr. Biochem. 1514
- Miss. Methemoglobin Levels in the Blood and Nitrate Levels in the Urine of Small Laboratory Animals Fed Sublethal Amounts of Nitrate. To learn (1) if small laboratory animals undergo poisoning, as measured by methemoglobin levels, when NaNO_3 is incorporated into the diet over a sublethal range; (2) the range of feeding levels over which methemoglobin increases and (3) as inferred from objectives (1) and (2), to describe a tool for future use in studies of toxicity of nitrates in plants.
Home Econ., Chem. HJ-4 HF-5
- Mo. Critical Nutrients in Guinea Pig Nutrition. To determine if there is an organic factor required to prevent the development of certain abnormal symptoms in guinea pigs.
Agr. Chem. 149
- Mo. Nutrients Required by the Rat for Optimum Growth and Reproduction.--a. Maternal Nutrition and Congenital Abnormalities in Infant Rats. To (1) evaluate the importance of various vitamin and amino acid deficiencies on the incidence of malformed offspring; (2) determine if there is an unrecognized factor in soybean oil meal needed for normal fetal development; (3) study physiological stress other than malnutrition; (4) study maze learning of malnourished offspring and correlate this with histological sections of brain; and (5) assay tissues of B_{12} deficient rats for more important biochemical constituents.
Agr. Chem. 151

- N. J. Atherosclerosis and Lipid Metabolism in the Aging Process of the Fowl. To study relationship between atherosclerosis non-specific mortality, reproductive efficiency, and aging in the fowl.
Poultry Husb. 562
- N. Y. The Prolongation of Productive Life. To investigate the (Cornell) interrelationship between liquid consumed, dietary constituents and productive life.
Anim. Husb. 57
- Pa. Relationship of Vitamin Intake to Growth, to Longevity, and Well-Being. To learn (1) if vitamin supplementations will affect longevity and general well-being of rats on diets believed to be nutritionally adequate; and (2) to what extent vitamin supplementation will affect growth, blood formation, fat deposition, and certain metabolic mechanisms in rats maintained on diets believed nutritionally adequate.
Anim. and Biochem. 1235
- Tex. A Study of the Nutritional Requirements for Reproduction and Lactation. To (1) learn nutritional requirements for reproduction and lactation using rats as experimental animals; (2) concentrate and identify unidentified factors needed for reproduction and/or lactation; and (3) learn kinds and proportion of ingredients to use in diets composed entirely of natural feed stuffs in order for females to wean maximum number of young.
Biochem., Nutr. 974
- Utah Influence of Various Stresses on Blood and Endocrine Tissue Proteins. To study the extent to which protein fractions of blood and endocrine tissues are altered by subjecting animals to physiological and pharmacological stresses, and if changes in these fractions are characteristic and may be used to identify functional alterations of physiological mechanisms or endocrine tissues.
Physio. 510
- Wis. The Effect of Green Plant Tissue on Fluorine Toxicity. To study toxic effects of fluorine and the protective effect of plant tissue and to study the mechanism of this protective action.
Home Econ. 977
- Wyo. The Toxic Effects of Sublethal Amounts of Potassium Nitrate on Animals. To study the effects of diets containing sublethal amounts of potassium nitrate and/or potassium nitrite on (1) pregnant animals; (2) lactating animals and their young, and to determine the growth rate of animals on diets containing sublethal amounts of potassium nitrate and/or potassium nitrite.
Agr. Res., Bact., Agron. 675

LIST OF COMPILATIONS OF FEDERAL-GRANT RESEARCH PROJECTS
AT STATE AGRICULTURAL EXPERIMENT STATIONS

ARS-23-8:		
Part :	Subject-Matter Area	Title of Section
Numbers :		
1	Agricultural Chemistry	Agricultural Chemistry
2	Agricultural Economics	a. Prices, Incomes, & General Studies of Com- modities & Industries b. Farm Management c. Land Economics d. Farm Finance & Taxation
3	Agricultural Engineering	a. Land & Water Use & Develop- ment b. Power Machinery & Equipment c. Farm Structures & Materials
4	Animal Husbandry	a. Beef Cattle b. Sheep & Goats c. Swine
5	Dairy Husbandry	Dairy Cattle
6	Dairy Technology	Dairy Technology
7	Entomology & Economic Zoology	a. Field Crop Insects b. Fruit, Nut & Vegetable Insects c. Miscellaneous Insects & Economic Zoology d. Insecticides
8	Field Crops	a. Cereal Crops b. Oil, Fiber, Tobacco & Sugar Crops
9	Food Science & Technology	a. Food Chemistry, Micro- biology, Sanitation & Public Health b. Food Engineering, Processing, Product and Process Develop- ment, Utilization and Waste Disposal c. Food Quality & Standards, Acceptance, Preference, & Marketing
10	Forage Crops, Pastures & Ranges	Forage Crops, Pastures & Ranges
11	Forestry	Forestry

ARS-23-8:		
Part :	Subject-Matter Area	Title of Section
Numbers :		
12	Fruits & Nuts	Fruits & Nuts
13	Home Economics	a. Human Nutrition b. Housing c. Clothing & Textiles d. Foods-Consumer Quality & Utilization e. Household Economics & Management
14	Economics of Marketing	a. Field Crops b. Fruits & Vegetables c. Livestock, Meats & Wool d. Dairy Products e. Poultry & Poultry Products f. Forest Products & Ornamental & Drug Plants g. Cross-Commodity & Functional Studies
15	Meteorology	Meteorology
16	Ornamental & Drug Plants	Ornamental & Drug Plants
17	Plant Pathology & Bacteriology	a. Plant Pathology, Botany, & Diseases of Miscellaneous Crops b. Diseases of Field Crops c. Diseases of Fruit Crops d. Diseases of Vegetable Crops
18	Plant Physiology & Nutrition	Plant Physiology & Nutrition
19	Poultry Industry	Poultry Industry
20	Rural Sociology	Rural Life Studies
21	Soils	a. Soil Chemistry & Microbiology b. Soil Fertility, Management & Soil-Plant Relationships c. Soil Physical Properties, Conservation & Classification
22	Vegetables	a. Vegetable Crops b. Potatoes
23	Veterinary Science	Veterinary Science
24	Weeds	Weed Control

